

IN THE CLAIMS:

1. (Currently Amended) A method of managing the saturation level of a vapor collection canister for an on-board fuel vapor emission control system, comprising:

providing a vapor collection canister having a first port and a second port, the vapor collection canister defining a volume with a partition within the vapor collection canister dividing the volume into at least first and second portions, the first port being in communication with the first portion and the second port being in communication with the second portion,

flowing the fuel vapor through a canister flow path between the a first port and the a second port, ~~of the vapor collection canister, and~~

providing at least one temperature sensor in each of the first and second portions, and

signaling with the a sensors the temperature of an adsorbent disposed in the canister flow path, the sensors being exposed to the adsorbent.

2. (Currently Amended) The method of claim 1, wherein the signaling with the a sensors comprises signaling the temperatures of each of the first and second ~~a plurality of portions of the adsorbent~~ with a plurality of sensors disposed in the respective plurality of portions of the adsorbent.

3. (Original) The method of claim 2, further comprising locating an adsorption front of the adsorbent based on the temperature signals.

4. (Currently Amended) The method of claim 3, further comprising purging an adsorbate ~~adsorbate~~ from the adsorbent ~~adsorbent~~ when the adsorption front advances to one of the plurality of portions of the adsorbent.

5. (Original) The method of claim 4, wherein the purging comprises:
receiving the temperature signals with an electronic control unit; and

sending an actuating control signal from the electronic control unit to a solenoid actuated valve disposed in a first conduit, the first conduit providing a purge flow path between the first port and an intake manifold of an internal combustion engine.

6. (Original) The method of claim 5, wherein the purging comprises:

flowing atmospheric air through a second conduit, the second conduit providing an atmospheric flow path to the second port;

flowing the atmospheric air through the second port;

flowing the atmospheric air through the canister flow path; and

flowing the atmospheric air through the first conduit.

7. (Original) The method of claim 6, further comprising managing the pressure of the canister purge valve with a pressure management valve disposed in the second conduit.

8. (Original) The method of claim 7, wherein the receiving the temperature signals with the electronic control unit comprises:

receiving the temperature signals with a printed circuit board, the printed circuit board being disposed in the pressure management valve; and

sending the temperature signals to the electronic control unit.

9. (Currently Amended) A method of managing fuel vapor in an on-board fuel vapor emission control system, the vapor emission control system including a fuel tank headspace, a vapor collection canister, a canister purge valve, a pressure management valve, an electronic control unit, a first conduit providing fluid communication between the fuel tank headspace, the vapor collection canister, and an intake manifold of an internal combustion engine, and a second conduit providing fluid communication between the vapor collection canister and ambient atmosphere, the canister purge valve being disposed in the first conduit, the pressure management valve being disposed in the second conduit, the vapor collection canister having a first port and a second port, the vapor collection canister defining a volume with a partition within the

vapor collection canister dividing the volume into at least first and second portions, the first port being in communication with the first portion and the second port being in communication with the second portion, the method comprising:

flowing the fuel vapor through a canister flow path between the a first port and the a second port ~~of the vapor collection canister; and~~

providing at least one temperature sensor in each of the first and second portions, and

signaling with the a sensors the temperature of an adsorbent disposed in the canister flow path, the sensors being exposed to the adsorbent.

10. (Currently Amended) The method of claim 9, wherein the signaling with the a sensors comprises signaling the temperatures of each of the first and second ~~a plurality of portions of the adsorbent~~ with a plurality of sensors disposed in the respective plurality of portions of the adsorbent.

11. (Original) The method of claim 10, further comprising locating an adsorption front of the adsorbent based on the temperature signals.

12. (Curretnalty. Amended) The method of claim 11, further comprising purging an adsorbate ~~adsorbate~~ from the adsorbent ~~adsorbent~~ when the adsorption front advances to one of the plurality of portions of the adsorbent.

13. (Original) The method of claim 12, wherein the purging comprises:
receiving the temperature signals with the electronic control unit; and
sending an actuating control signal from the electronic control unit to the canister purge valve.

14. (Original) The method of claim 13, wherein the purging comprises:
flowing atmospheric air through the second conduit;
flowing the atmospheric air through the second port;

flowing the atmospheric air through the canister flow path; and
flowing the atmospheric air through the first conduit.

15. (Original) The method of claim 14, further comprising managing the pressure of the canister purge valve with the pressure management valve.

16. (Original) The method of claim 15, wherein the receiving the temperature signals with the electronic control unit comprises:

receiving the temperature signals with a printed circuit board, the printed circuit board being disposed in the pressure management valve; and
sending the temperature signals to the electronic control unit.